



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

July 13, 1999

MEMORANDUM

SUBJECT: **Pirimiphos-methyl.** (Chemical ID No. 108102/List B Reregistration Case No. 2535). Revised Acute and Chronic Dietary Exposure and Risk Analyses for the HED Human Health Risk Assessment. No MRID #. DP Barcode No. D257370.

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**Background/Action Requested**

The Health Effects Division (HED) human health risk assessment for pirimiphos-methyl [C. Swartz, D240741 and D241203, 10/23/98] incorporated doses and endpoints for risk assessment which were selected from two oral studies conducted in humans. Acute and chronic dietary exposure and risk estimates generated using the Dietary Exposure Evaluation Model (DEEM™) exceeded HED's level of concern for the general US population, infants (<1 year) and children (1-12 years), even though refined (anticipated) residue estimates were used in the analyses [C. Swartz, D245961, 7/21/98].

The HED Hazard Identification Assessment Review Committee (HIARC) subsequently reevaluated the human studies for the purpose of risk assessment, and concluded that the human studies were inadequate for risk assessment purposes. The HIARC then selected doses and endpoints from the appropriate animal toxicity studies (memo, J. Rowland and P. Wagner, 5/26/99). Revised acute and chronic dietary exposure and risk analyses are needed to assess dietary exposure and risk with respect to the doses selected from animal toxicity studies. The DEEM™ analyses should incorporate revised anticipated residues for pirimiphos-methyl (C. Swartz, 7/6/99, D257369).

## Executive Summary

Acute and chronic dietary exposure and risk estimated using reassessed tolerances (Tier 1) exceed HED's level of concern; the most highly exposed population subgroup is non-nursing infants, with approximately 1,000 %aPAD (acute Population Adjusted Dose) and 31,000 %cPAD (chronic Population Adjusted Dose) consumed. Tier 1 analyses which exclude high fructose corn syrup (HFCS) and corn sugar/molasses result in significantly reduced exposure and risk estimates; the most highly exposed population subgroup is children 1-6 years, with 114 %aPAD and 2,300 %cPAD consumed.

Tier 3 chronic and acute probabilistic analyses were conducted using residues refined with (i) PDP and FDA monitoring data; (ii) anticipated (average) residues (ARs) from residue trials conducted on grain and BEAD/OPP % crop treated (%CT) data; and (iii) ARs in livestock commodities. Although BEAD estimated less than 1% CT for corn, pirimiphos-methyl residues were detected in 24 of 70 (34%) FDA monitoring samples for popcorn (1992-1998). These data could not be used directly in the dietary exposure analysis since HED typically requires a minimum of 100 monitoring samples for use in quantitative risk assessment. Due to uncertainties regarding residues in popcorn, four different popcorn anticipated residue (AR) scenarios were used, along with refined residues in livestock and field corn commodities, to estimate dietary exposure and risk. Detailed results for all population subgroups are shown in Tables 3 and 4 (see below). The results of these assessments for the general US population and children 1-6 years, the most highly exposed subgroup, are:

### Summary of Tier 3 Acute (99.9th Percentile) and Chronic Dietary Risk Estimates for Pirimiphos-methyl.<sup>1</sup>

Population Subgroup	Popcorn Assessment 1		Popcorn Assessment 2		Popcorn Assessment 3		Popcorn Assessment 4	
	%aPAD	%cPAD	%aPAD	%cPAD	%aPAD	%cPAD	%aPAD	%cPAD
General US population	51	3	54	32	62	52	92	90
Children 1-6 years	80	6	83	51	95	82	141	141

<sup>1</sup> aPAD/cPAD = acute/chronic Population Adjusted Dose; aPAD = 0.005 mg/kg/day; cPAD = 0.000067 mg/kg/day.

Popcorn Assessment 1=Least Conservative: Average field corn residue trial value, with adjustment for 1% CT (BEAD); Popcorn Assessment 2: Average field corn residue trial value with adjustment for 34% detects in FDA popcorn;

Popcorn Assessment 3: Average of FDA popcorn monitoring detects with no adjustment for %CT;  
Popcorn Assessment 4=Most Conservative: Average field corn residue trial value, no adjustment for %CT.

The revised anticipated residues result in significant reduction of the dietary exposure and risk estimates relative to the reassessed tolerances and the previous (7/21/98) analysis. To further characterize dietary exposure/risk, HED generated an acute critical exposure contribution analysis and a chronic commodity contribution analysis for the worst-case scenario, popcorn Assessment 4. These analyses indicate that at the 99.9th percentile of exposure, both popcorn and corn grain (endosperm) are significant contributors to the estimated acute dietary risk, but estimated chronic dietary risk is almost entirely due to residues in popcorn.

Additional information regarding the popcorn monitoring samples and/or usage on popcorn should be obtained to refine the anticipated residue in popcorn. Although the most conservative approach results in risk estimates above HED's level of concern for children 1-6 years, dietary exposure/risk were at or below HED's level of concern for other population subgroups. The analyses do not take into account the effect of heating/popping on pirimiphos-methyl residues in popcorn.

### Toxicological Information

Previous HED decisions regarding acute and chronic doses for risk assessment, as well as uncertainty factors to be applied to these doses, were summarized in the 5/26/99 HIARC memo; animal toxicity doses and endpoints recently selected by the HIARC supersede previous HED committee reports for pirimiphos-methyl.

Due to the lack of a complete toxicity database for assessing the potential for increased sensitivity of infants and children to pirimiphos-methyl, an additional 3X safety factor has been retained in accordance with the Food Quality Protection Act (FQPA) of 1996. The 10/23/98 human health risk assessment referred to dietary risk in terms of the percentage of the acute and chronic reference doses (aRfD and cRfD, respectively) consumed by uses supported through reregistration. Acute and chronic reference doses (aRfD and cRfD) which include the FQPA safety factor are now referred to as the acute and chronic Population Adjusted Doses (aPAD and cPAD), respectively.

The revised doses and endpoints for dietary exposure assessment are shown in Table 1.

Table 1. Summary of Doses/Endpoints for Dietary Risk Assessment for Pirimiphos-Methyl.<sup>1</sup>

EXPOSURE SCENARIO	DOSE(mg/kg/day) [Uncertainty Factors] <sup>2</sup>	ENDPOINT	STUDY	RfD/PAD <sup>3</sup> (mg/kg/day)
Acute dietary	15.0 (LOAEL)  Conventional UF = 100X Severity of effects/Lack of NOAEL UF = 10X FQPA = 3X	Brain, RBC and Plasma ChEI	Acute Neurotoxicity, Rat	Acute RfD = 0.015 Acute PAD = 0.005
Chronic dietary	0.2 (LOAEL)  Conventional UF = 100X Lack of NOAEL/Data Gaps UF = 10X FQPA = 3X	Plasma ChEI	Subchronic Toxicity, Rat	Chronic RfD = 0.0002 Chronic PAD = 0.000067

<sup>1</sup> Refer to the J. Rowland and P. Wagner memo dated 5/26/99. ChEI = Cholinesterase inhibition; RBC = red blood cell.

<sup>2</sup> The conventional uncertainty factor of 100X consists of 10X for interspecies extrapolation and 10X for intra-species variability.

<sup>3</sup> RfD = Reference Dose = LOAEL/UF; PAD = Population Adjusted Dose = RfD/FQPA Safety Factor.

## Residue Information

Pirimiphos-methyl is registered for post-harvest use on stored corn and sorghum grain; in addition, impregnated materials (ear tags) are registered for application to cattle. For the purpose of dietary exposure assessment, the only food use for pirimiphos-methyl is post-harvest application on stored grain; secondary residues in livestock commodities are potentially incurred when livestock consume feed items containing pirimiphos-methyl residues. Dietary exposure and risk estimates summarized in the 10/23/98 preliminary human health risk assessment were conducted using the anticipated residue (AR) estimates provided in the Residue Chemistry Chapter for pirimiphos-methyl.

The residues of concern for dietary risk assessment are pirimiphos-methyl and its des-ethyl metabolite. However, in order to harmonize with CODEX, only the parent, pirimiphos-methyl is to be included in the tolerance expression [40 CFR §180.409]. The tolerance reassessment summary provided in the Residue Chemistry Chapter has been revised (C. Swartz, 7/7/99, D257369). A tolerance for residues in corn oil is no longer deemed necessary; HED has recommended revocation of tolerances in meat, milk, eggs, poultry meat, and poultry meat by-products which are classified under Category 3 of 40 CFR §180.6(a)(3), i.e., there is no reasonable expectation of detectable residues. Revised ARs have been generated in accordance with changes in HED policy for assessing acute dietary risk, and to include revised usage data and additional monitoring data (C. Swartz, 7/7/99). The revised

ARs for acute and chronic dietary exposure/risk analysis for pirimiphos-methyl are shown in Table 2.

Table 2. Summary of Pirimiphos-Methyl Anticipated Residues for Dietary Exposure Analysis.

Commodity/ Food Form <sup>1</sup>	Data Source <sup>2</sup>	Acute AR (ppm) <sup>3</sup>	Chronic AR (ppm) <sup>4</sup>	Adjustment for Residue Reduction <sup>5</sup>	Adjustment for % CT <sup>6</sup>
Corn/ Endosperm	FDA	RDF 9 detects 718 @ 0.005 (½ LOD)	0.0146	0.3X	1.0
Corn/ Bran	FDA	RDF 9 detects 718 @ 0.005 (½ LOD)	0.0146	1X	1.0
Corn/oil	FDA	RDF 9 detects 718 @ 0.005 (½ LOD)	0.0146	0.06X	1.0
Corn/Sugar/HFCS	PDP	0.0005	0.0005	1X	1.0
Corn/Sugar/Molasses	PDP	0.0005	0.0005	1X	1.0
Popcorn (Assessment 1) <sup>7</sup>	RT	2.51	2.51	1X	0.01
Popcorn (Assessment 2) <sup>7</sup>	RT/FDA	2.51	2.51	1X	0.34 (acute) 0.34 (chronic)
Popcorn (Assessment 3) <sup>7</sup>	FDA	1.42	1.42	1X	1.0
Popcorn (Assessment 4) <sup>7</sup>	RT	2.51	2.51	1X	1.0
Sorghum	RT	3.9	3.9	1X	0.02 (acute) 0.01 (chronic)
Beef liver	FS/FDA	$3.61 \times 10^{-5}$	$1.40 \times 10^{-5}$	1X	1.0
Beef kidney	FS/FDA	$4.05 \times 10^{-5}$	$1.89 \times 10^{-5}$	1X	1.0
Beef fat	FS/FDA	$6.83 \times 10^{-5}$	$3.16 \times 10^{-5}$	1X	1.0
Poultry fat	FS/FDA	$1.36 \times 10^{-5}$	$1.36 \times 10^{-5}$	1X	1.0

<sup>1</sup> The corn grain food forms listed are those found in the Dietary Exposure Evaluation Model (DEEM™) for corn; HFCS is high fructose corn syrup. **Beef anticipated residues should be translated to similar commodities (liver, kidney and fat) of hogs, goats, and sheep.**

<sup>2</sup> FDA = FDA monitoring data; PDP = PDP monitoring data; RT = Residue Trials; FS/FDA = Feeding study/FDA monitoring data.

- <sup>3</sup> Either a point estimate or a residue distribution file (RDF) from monitoring data is specified for acute dietary exposure assessment (see below for derivation of the RDF).
- <sup>4</sup> A point estimate derived from residue trials or monitoring data is specified for chronic dietary exposure assessment.
- <sup>5</sup> The processing (reduction) factors were derived from processing studies submitted in support of registration and reregistration; the reduction factor for corn oil is based on residues in bleached/deodorized refined oil.
- <sup>6</sup> The % crop treated (%CT) is listed as a percentage, and should be used in the relevant dietary exposure analyses, i.e. estimated maximum for acute analysis, and weighted average for chronic analysis. Note that the adjustment for %CT is not necessary when monitoring data are the source of the AR.
- <sup>7</sup> Four assessments should be completed:
  - 1) (least conservative) Use average field corn RT value, with an adjustment for 1%CT (BEAD usage information);
  - 2) Use average field corn RT value and an adjustment for 34% detects in FDA monitoring;
  - 3) Use popcorn AR from FDA monitoring data (average of detects) with no adjustment for %CT;
  - 4) (most conservative) Use average field corn RT value with no adjustment for %CT.

Monitoring data from the USDA Pesticide Data Program, FDA monitoring data and revised usage data were summarized in detail in the 7/7/99 memo. The FDA monitoring data for pirimiphos-methyl *per se* residues in field corn have been incorporated into a residue distribution file (RDF) for a probabilistic acute dietary exposure analysis. The RDF consists of the 9 detected residues in field corn and 718 samples assumed to be present at ½ the limit of detection (LOD) of 0.01 ppm, or 0.005 ppm (see attachment 1).

The following analyses are included in the current assessment:

Tier 1: Acute and chronic dietary exposure analyses based on (reassessed) tolerance-level residues in grains and livestock commodities without adjustment for %CT. Additional acute and chronic Tier 1 analyses incorporate reassessed tolerances, but do not include HFCS and corn sugar/molasses.

Tier 3: Chronic dietary exposure analyses, incorporating anticipated (average) residues in grains (including the adjustment for %CT) and livestock commodities. Chronic anticipated residues in popcorn were estimated four different ways, and therefore a total of four Tier 3 chronic analyses have been conducted.

Tier 3: Probabilistic acute dietary exposure analyses using residue distribution files (RDFs) for field corn commodities. Acute anticipated residues in popcorn were estimated four different ways, and therefore a total of four Tier 3 acute dietary exposure analyses have been conducted.

Residue values in commodities entered into the DEEM™ analysis can be modified using two adjustment factors. The first adjustment factor is used to account for concentration or reduction of residues in processed commodities; the second adjustment factor is used to account for the weighted average (chronic analysis) or estimated maximum (acute analysis) %CT. The factors applied in the

current analyses are shown in Table 2, along with the anticipated residues.

## **Consumption Data**

HED conducts dietary risk assessments using the Dietary Exposure Evaluation Model (DEEM™), which incorporates consumption data generated in USDA's Continuing Surveys of Food Intakes by Individuals (CSFII), 1989-1992. For acute dietary risk assessments, the entire distribution of consumption events for individuals is combined with either a single residue level (deterministic analysis, risk at 95th percentile of exposure reported) or a distribution of residues (probabilistic analysis, referred to as "Monte Carlo," risk at 99.9th percentile of exposure reported) to obtain a distribution of exposure in mg/kg/day. For chronic dietary risk assessments, the three-day average of consumption for each sub-population is combined with residues in commodities to determine average exposure in mg/kg/day.

## **Results**

The revised dietary exposure and risk estimates for pirimiphos-methyl are shown in Tables 3 (chronic) and 4 (acute).

### *Chronic*

Chronic dietary exposure and risk estimated using reassessed tolerances (Tier 1) greatly exceed HED's level of concern. The most highly exposed population subgroup is non-nursing infants (<1 year old), with approximately 31,000% of the chronic PAD (cPAD) consumed; approximately 9,200 %aPAD is consumed for the general US population. A second Tier 1 analysis which excluded high fructose corn syrup and corn sugar/molasses greatly reduced the estimated exposure and risk. However, chronic dietary exposure (Tier 1) continues to exceed HED's level of concern; the most highly exposed population subgroup is children 1-6 years, with 2,300 %cPAD consumed.

Refinement of the analysis with (i) PDP and FDA monitoring data; (ii) ARs from residue trials conducted on grain; and (iii) ARs in livestock commodities, yielded significantly lower chronic dietary exposure estimates. Four different Tier 3 chronic assessments were completed, each using highly refined anticipated residues for corn, sorghum and livestock commodities, and one of four residue options for popcorn.

Estimated chronic dietary exposure (Tier 3) exceeds HED's level of concern when the most conservative residue value for popcorn is used in the analysis, i.e. the average field corn residue from trials, and no adjustment for %CT. The most highly exposed population subgroup is children 1-6 years, with 141 %cPAD consumed, of which 136 %cPAD is attributed to residues in popcorn. However, use of popcorn ARs derived from either residue trials or FDA popcorn monitoring data, and incorporating the % of detects in FDA monitoring samples, results in chronic dietary exposure estimates below HED's level of concern; in each case, children 1-6 years are the most highly exposed population subgroup. The lowest estimated chronic dietary risk corresponds to use of the average field corn residue trial value for popcorn, and adjustment for 1%CT, as estimated by BEAD; in this

case, exposure to children 1-6 years consumes approximately 6% cPAD, while exposure to the general US population consumes 3 %cPAD. This approach may underestimate dietary exposure/risk, based on the magnitude and frequency of residues found in FDA popcorn monitoring samples.

The chronic dietary exposure analyses confirm that additional information pertaining to pirimiphos-methyl usage on popcorn is needed. Since highly refined residue estimates are available for other corn commodities, sorghum and livestock commodities, the chronic dietary risk estimates depend largely on the assumptions made regarding residues in popcorn. There are no data available to determine the effect of heating/popping on pirimiphos-methyl residues in popcorn; this is a source of uncertainty in the chronic dietary exposure analyses.

#### *Acute*

Acute dietary exposure and risk estimated using reassessed tolerances (Tier 1) greatly exceed HED's level of concern. The most highly exposed population subgroup is non-nursing infants (<1 year old), with approximately 1,000% of the acute PAD (aPAD) consumed at the 95th percentile of exposure; dietary risk for the general US population consumed 390 %aPAD. A second Tier 1 analysis which excluded high fructose corn syrup and corn sugar/molasses greatly reduced the estimated exposure and risk. Acute dietary exposure (Tier 1) continues to exceed HED's level of concern for children 1-6 years, the most highly exposed population subgroup, with 114 %aPAD consumed at the 95th percentile; however, estimated dietary exposure to the general US population consumed 67 %aPAD, which is below HED's level of concern.

Probabilistic analyses demonstrate that estimated acute dietary exposure (Tier 3) exceeds HED's level of concern when the most conservative residue value for popcorn is used in the analysis, i.e. the average field corn residue from trials, and no adjustment for %CT. The most highly exposed population subgroup is children 1-6 years, with 141 %aPAD consumed, but estimated dietary risk for other population subgroups (excluding children 7-12 years) is below HED's level of concern.

Use of refined anticipated residues for popcorn, based on either residue trials or FDA popcorn monitoring data, and incorporating the % of detects in FDA popcorn monitoring samples, results in probabilistic acute dietary exposure estimates below HED's level of concern. In each case, children 1-6 years is the most highly exposed population subgroup at the 99.9th percentile of exposure. Estimated acute dietary risk for children 1-6 years ranged from 80 to 95 %aPAD, while dietary risk for the general US population ranged from 51-62 %aPAD.

Examination of the critical exposure contribution analysis (CEC) revealed that consumption of popcorn and corn grain endosperm (i.e. through baked commodities) result in significant estimated exposure to pirimiphos-methyl residues. The highest detected residue (4.4 ppm) in the corn grain FDA monitoring data appears to have a greater impact on the estimated exposure and risk at the 99.9th percentile than excessive consumption events for individual survey respondents.

Attachments supporting the analyses:

- Attachment 1: Residue Distribution File (RDF) for field corn.  
Attachment 2: Chronic Tier 1 Analysis--Reassessed Tolerances.  
Attachment 3: Chronic Tier 1 Analysis--Reassessed Tolerances Excluding HFCS and Sugar/Molasses.  
Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.  
Attachment 5: Acute Tier 1 Analysis--Reassessed Tolerances.  
Attachment 6: Acute Tier 1 Analysis--Reassessed Tolerances, Excluding HFCS and Sugar/Molasses.  
Attachment 7: Acute Probabilistic (Tier 3) Analyses--Popcorn Assessments 1-4.

Secondary Review: Felecia Fort:07/12/99; Doug Dotson:07/13/99  
Dietary Exposure SAC Team Review:7/13/99

cc: Reviewer (CSwartz); LaShonia Richardson (CEB1/HED, 7509C), List B Rereg. File; SF 7509C:CSwartz:RRB1:CM2:Rm 722H:703 305 5877:07/07/99

Table 3. Pirimiphos-methyl Chronic Dietary Exposure and Risk Estimates.<sup>1</sup>

Population Subgroup	Chronic Reassessed Tolerances 1		Chronic Reassessed Tolerances 2		Chronic ARs Popcorn Assessment 1		Chronic ARs Popcorn Assessment 2		Chronic ARs Popcorn Assessment 3		Chronic ARs Popcorn Assessment 4	
	Exposure (mg/kg/day)	% cPAD	Exposure (mg/kg/day)	%cPAD	Exposure (mg/kg/day)	%cPAD	Exposure (mg/kg/day)	%cPAD	Exposure (mg/kg/day)	%cPAD	Exposure (mg/kg/day)	%cPAD
General U.S. Population	0.006150	9,200	0.000740	1,100	0.000002	2.9	0.000021	32	0.000035	52	0.000060	90
All infants (<1 yr)	0.075708	23,000	0.000328	490	0.000002	2.3	0.000002	2.3	0.000002	2.3	0.000002	2.3
Nursing infants (<1 yr)	0.003917	5,800	0.000068	100	0.000000	<1	0.000000	<1	0.000000	<1	0.000000	<1
Non-nursing infants (<1 yr)	0.020671	31,000	0.000438	650	0.000002	3.1	0.000002	3.1	0.000002	3.1	0.000002	3.1
Children (1-6 years)	0.014246	21,000	0.001548	2,300	0.000004	5.9	0.000034	51	0.000055	82	0.000094	141
Children (7-12 years)	0.010967	16,000	0.001256	1,900	0.000003	4.8	0.000032	48	0.000052	77	0.000090	134
Females (13-19)	0.006245	9,300	0.000735	1,100	0.000002	2.8	0.000019	29	0.000031	47	0.000054	81
Females (20+ years)	0.003883	5,800	0.000497	740	0.000001	2.0	0.000019	28	0.000030	45	0.000053	79
Females (13-50 years)	0.004582	6,800	0.000568	850	0.000002	2.3	0.000021	31	0.000034	51	0.000060	89
Males (13-19 years)	0.007982	12,000	0.000853	1,300	0.000002	3.4	0.000027	41	0.000044	66	0.000077	115
Males (20+ years)	0.004335	6,500	0.000640	960	0.000002	2.4	0.000018	27	0.000030	44	0.000052	77

<sup>1</sup> The chronic PAD (cPAD) is 0.000067 mg/kg/day.

Reassessed Tolerances 1: Analysis includes tolerance-level residues in HFCS and Sugar/Molasses.

Reassessed Tolerances 2: Analysis excludes HFCS and Sugar/Molasses.

Popcorn Assessment 1 = Average residue trial value, <1 %CT.

Popcorn Assessment 2 = Average residue trial value, 34% CT (detects in monitoring data).

Popcorn Assessment 3 = Average of FDA monitoring detects, no adjustment for %CT.

Popcorn Assessment 4 = Average residue trial value, no adjustment for %CT.

Table 4. Pirimiphos-methyl: Acute Dietary Exposure and Risk Estimates.<sup>1</sup>

Population Subgroup	Deterministic Analysis (95th Percentile of Exposure Reported)				Probabilistic Analysis (99.9th Percentile of Exposure Reported)							
	Acute Reassessed Tolerances 1		Acute Reassessed Tolerances 2		Acute ARs Popcorn Assessment 1		Acute ARs Popcorn Assessment 2		Acute ARs Popcorn Assessment 3		Acute ARs Popcorn Assessment 4	
	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD	Exposure (mg/kg/day)	%aPAD
General U.S. Population	0.019524	390	0.003348	67	0.002559	51	0.002678	54	0.003102	62	0.004591	92
All infants (<1 yr)	0.049357	990	0.002008	40	0.002664	53	0.002664	53	0.002664	53	0.002664	53
Nursing infants (<1 yr)	0.016215	320	0.000654	13	0.000584	12	0.000584	12	0.000584	12	0.000584	12
Non-nursing infants (<1 yr)	0.052105	1,000	0.002208	44	0.002884	58	0.002884	58	0.002884	58	0.002884	58
Children (1-6 years)	0.037433	750	0.005705	114	0.004017	80	0.004168	83	0.004774	95	0.007040	141
Children (7-12 years)	0.027216	540	0.005140	103	0.003158	63	0.003214	64	0.003415	68	0.005029	101
Females (13-19)	0.016340	330	0.003201	64	0.002684	54	0.002698	54	0.002701	54	0.003549	71
Females (20+ years)	0.011013	220	0.002332	47	0.001568	31	0.001773	35	0.002185	44	0.003563	71
Females (13-50 years)	0.013017	260	0.002671	53	0.001786	36	0.001990	40	0.002531	51	0.003755	75
Males (13-19 years)	0.019612	390	0.003721	74	0.002225	44	0.002314	46	0.002749	55	0.004309	86
Males (20+ years)	0.012203	240	0.002768	55	0.002121	42	0.002192	44	0.002471	49	0.003645	73

<sup>1</sup> The acute PAD (aPAD) is 0.005 mg/kg/day.

Reassessed Tolerances 1: Analysis includes tolerance-level residues in HFCS and Sugar/Molasses.

Reassessed Tolerances 2: Analysis excludes HFCS and Sugar/Molasses.

Popcorn Assessment 1 = Average field corn residue trial value, <1 %CT.

Popcorn Assessment 2 = Average field corn residue trial value, 34% “CT” (detection rate in FDA popcorn monitoring data).

Popcorn Assessment 3 = Average of FDA popcorn monitoring detects, no adjustment for %CT.

Popcorn Assessment 4 = Average field corn residue trial value, no adjustment for %CT.

Attachment 1: Residue Distribution File (RDF) for field corn.

Pirimiphos-methyl Corn RDF: FDA monitoring data

TOTALNZ=9

TOTALLOD=718

LODRES=0.005

0.02

0.04

0.16

4.4

0.14

1.1

0.6

0.539

0.005

Attachment 2: Chronic Tier 1 Analysis--Reassessed Tolerances.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file: C:\Dressac\108102r1.R96  
 Analysis Date 07-04-1999      Residue file dated: 07-04-1999/19:24:01/8  
 chronic Population Adjusted Dose (cPAD) = 0.000067 mg/kg bw/day  
 Comment:Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Tier 1 Based on reassessed tolerances, but includes processing factors for oil/endosperm.  
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Food Code	Crop Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
				#1	#2
237	15	Corn/pop	8.000000	1.000	1.000
266	15	Corn grain-endosperm	8.000000	0.300	1.000
267	15	Corn grain-bran	8.000000	1.000	1.000
268	15	Corn grain/sugar/hfcs	8.000000	1.000	1.000
275	15	Sorghum (including milo)	8.000000	1.000	1.000
289	15	Corn grain-oil	8.000000	0.060	1.000
321	M	Beef-meat byproducts	0.040000	1.000	1.000
322	M	Beef-other organ meats	0.040000	1.000	1.000
324	M	Beef-fat w/o bones	0.040000	1.000	1.000
325	M	Beef-kidney	0.040000	1.000	1.000
326	M	Beef-liver	0.040000	1.000	1.000
328	M	Goat-meat byproducts	0.040000	1.000	1.000
329	M	Goat-other organ meats	0.040000	1.000	1.000
330	M	Goat-fat w/o bone	0.040000	1.000	1.000
331	M	Goat-kidney	0.040000	1.000	1.000
332	M	Goat-liver	0.040000	1.000	1.000
342	M	Pork-meat byproducts	0.040000	1.000	1.000
343	M	Pork-other organ meats	0.040000	1.000	1.000
344	M	Pork-fat w/o bone	0.040000	1.000	1.000
345	M	Pork-kidney	0.040000	1.000	1.000
346	M	Pork-liver	0.040000	1.000	1.000
357	P	Turkey--fat w/o bones	0.040000	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.040000	1.000	1.000
368	P	Chicken-fat w/o bones	0.040000	1.000	1.000
388	15	Corn grain/sugar-molasses	8.000000	1.000	1.000
424	M	Veal-fat w/o bones	0.040000	1.000	1.000
426	M	Veal-kidney	0.040000	1.000	1.000
427	M	Veal-liver	0.040000	1.000	1.000
428	M	Veal-other organ meats	0.040000	1.000	1.000
430	M	Veal-meat byproducts	0.040000	1.000	1.000

## Attachment 2: Chronic Tier 1 Analysis--Reassessed Tolerances.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102r1.R96      Adjustment factor #2 NOT used.  
 Analysis Date 07-04-1999/19:26:34      Residue file dated: 07-04-1999/19:24:01/8  
 Reference dose (RfD, CHRONIC) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA; Tier 1 Based on reassessed tolerances, but includes processing factors for oil/endosperm.  
 ======  
 Total exposure by population subgroup  
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Population Subgroup	Total Exposure	
	mg/kg body wt/day	Percent of Rfd
U.S. Population (total)	0.006150	9,178.7%
U.S. Population (spring season)	0.006023	8,990.2%
U.S. Population (summer season)	0.006329	9,445.8%
U.S. Population (autumn season)	0.006380	9,522.6%
U.S. Population (winter season)	0.005837	8,711.3%
Northeast region	0.005587	8,338.4%
Midwest region	0.006539	9,760.2%
Southern region	0.006353	9,482.4%
Western region	0.005909	8,819.4%
Hispanics	0.006216	9,278.0%
Non-hispanic whites	0.006049	9,027.9%
Non-hispanic blacks	0.006914	10,319.8%
Non-hisp/non-white/non-black)	0.005365	8,008.0%
All infants (< 1 year)	0.015708	23,445.0%
Nursing infants	0.003917	5,846.1%
Non-nursing infants	0.020671	30,852.0%
Children 1-6 yrs	0.014246	21,262.8%
Children 7-12 yrs	0.010967	16,369.4%
Females 13-19(not preg or nursing)	0.006245	9,320.5%
Females 20+ (not preg or nursing)	0.003883	5,796.2%
Females 13-50 yrs	0.004582	6,838.4%
Females 13+ (preg/not nursing)	0.004248	6,340.3%
Females 13+ (nursing)	0.004734	7,066.1%
Males 13-19 yrs	0.007982	11,913.3%
Males 20+ yrs	0.004335	6,470.4%
Seniors 55+	0.003373	5,034.4%
Pacific Region	0.005459	8,148.4%

Attachment 3: Chronic Tier 1 Analysis--Reassessed Tolerances, Excluding HFCS and Sugar/Molasses.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file: C:\Dressac\108102r2.R96  
 Analysis Date 07-04-1999                          Residue file dated: 07-04-1999/19:24:19/8  
 Chronic Population Adjusted Dose (cPAD) = 0.000067 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UF's of 10X, 10X and 3X for FQPA.  
 Tier 1 based on reassessed tolerances; includes PFs for oil/endosperm. HFCS/Molasses set to 0.

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
				#1	#2
237	15	Corn/pop	8.000000	1.000	1.000
266	15	Corn grain-endosperm	8.000000	0.300	1.000
267	15	Corn grain-bran	8.000000	1.000	1.000
275	15	Sorghum (including milo)	8.000000	1.000	1.000
289	15	Corn grain-oil	8.000000	0.060	1.000
321	M	Beef-meat byproducts	0.040000	1.000	1.000
322	M	Beef-other organ meats	0.040000	1.000	1.000
324	M	Beef-fat w/o bones	0.040000	1.000	1.000
325	M	Beef-kidney	0.040000	1.000	1.000
326	M	Beef-liver	0.040000	1.000	1.000
328	M	Goat-meat byproducts	0.040000	1.000	1.000
329	M	Goat-other organ meats	0.040000	1.000	1.000
330	M	Goat-fat w/o bone	0.040000	1.000	1.000
331	M	Goat-kidney	0.040000	1.000	1.000
332	M	Goat-liver	0.040000	1.000	1.000
342	M	Pork-meat byproducts	0.040000	1.000	1.000
343	M	Pork-other organ meats	0.040000	1.000	1.000
344	M	Pork-fat w/o bone	0.040000	1.000	1.000
345	M	Pork-kidney	0.040000	1.000	1.000
346	M	Pork-liver	0.040000	1.000	1.000
357	P	Turkey--fat w/o bones	0.040000	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.040000	1.000	1.000
368	P	Chicken-fat w/o bones	0.040000	1.000	1.000
424	M	Veal-fat w/o bones	0.040000	1.000	1.000
426	M	Veal-kidney	0.040000	1.000	1.000
427	M	Veal-liver	0.040000	1.000	1.000
428	M	Veal-other organ meats	0.040000	1.000	1.000
430	M	Veal-meat byproducts	0.040000	1.000	1.000

Attachment 3: Chronic Tier 1 Analysis--Reassessed Tolerances, Excluding HFCS and Sugar/Molasses.

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL Ver. 6.76  
 (1989-92 data)  
 Residue file name: C:\Dressac\108102r2.R96 Adjustment factor #2 NOT used.  
 Analysis Date 07-04-1999/19:27:32 Residue file dated: 07-04-1999/19:24:19/8  
 Chronic Population Adjusted Dose (cPAD) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA.  
 Tier 1 based on reassessed tolerances; includes PFs for oil/endosperm. HFCS/Molasses set to 0.

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Total exposure by population subgroup

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Population Subgroup	mg/kg body wt/day	Total Exposure
		Percent of Rfd
U.S. Population (total)	0.000740	1,104.4%
U.S. Population (spring season)	0.000739	1,103.3%
U.S. Population (summer season)	0.000799	1,193.1%
U.S. Population (autumn season)	0.000744	1,110.0%
U.S. Population (winter season)	0.000673	1,003.8%
Northeast region	0.000548	818.5%
Midwest region	0.000794	1,185.7%
Southern region	0.000827	1,234.6%
Western region	0.000721	1,076.2%
Hispanics	0.000871	1,299.9%
Non-hispanic whites	0.000713	1,064.0%
Non-hispanic blacks	0.000866	1,292.9%
Non-hisp/non-white/non-black)	0.000528	788.0%
All infants (< 1 year)	0.000328	490.0%
Nursing infants	0.000068	101.8%
Non-nursing infants	0.000438	653.4%
Children 1-6 yrs	0.001548	2,310.6%
Children 7-12 yrs	0.001256	1,875.2%
Females 13-19(not preg or nursing)	0.000735	1,096.5%
Females 20+ (not preg or nursing)	0.000497	741.1%
Females 13-50 yrs	0.000568	848.0%
Females 13+ (preg/not nursing)	0.000443	660.6%
Females 13+ (nursing)	0.000785	1,171.5%
Males 13-19 yrs	0.000853	1,273.2%
Males 20+ yrs	0.000640	955.1%
Seniors 55+	0.000448	668.0%
Pacific Region	0.000712	1,062.4%

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Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

Popcorn Assessment 1

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file: C:\Dressac\108102c1.R96  
 Analysis Date 07-04-1999      Residue file dated: 07-04-1999/18:44:35/8  
 Reference dose (RfD) = 0.000067 mg/kg bw/day  
 Comment:Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA; Refined w/anticipated residues; assessment 1 for popcorn.

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	Adj. Factors	
				#1	#2
237	15	Corn/pop	2.510000	1.000	0.010
266	15	Corn grain-endosperm	0.014600	0.300	1.000
267	15	Corn grain-bran	0.014600	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	1.000	1.000
275	15	Sorghum (including milo)	3.900000	1.000	0.010
289	15	Corn grain-oil	0.014600	0.060	1.000
321	M	Beef-meat byproducts	0.000019	1.000	1.000
322	M	Beef-other organ meats	0.000019	1.000	1.000
324	M	Beef-fat w/o bones	0.000032	1.000	1.000
325	M	Beef-kidney	0.000019	1.000	1.000
326	M	Beef-liver	0.000014	1.000	1.000
328	M	Goat-meat byproducts	0.000019	1.000	1.000
329	M	Goat-other organ meats	0.000019	1.000	1.000
330	M	Goat-fat w/o bone	0.000032	1.000	1.000
331	M	Goat-kidney	0.000019	1.000	1.000
332	M	Goat-liver	0.000014	1.000	1.000
342	M	Pork-meat byproducts	0.000019	1.000	1.000
343	M	Pork-other organ meats	0.000019	1.000	1.000
344	M	Pork-fat w/o bone	0.000032	1.000	1.000
345	M	Pork-kidney	0.000019	1.000	1.000
346	M	Pork-liver	0.000014	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	1.000	1.000
388	15	Corn grain/sugar-molasses	0.000500	1.000	1.000
424	M	Veal-fat w/o bones	0.000032	1.000	1.000
426	M	Veal-kidney	0.000019	1.000	1.000
427	M	Veal-liver	0.000014	1.000	1.000
428	M	Veal-other organ meats	0.000019	1.000	1.000
430	M	Veal-meat byproducts	0.000019	1.000	1.000

Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

**Popcorn Assessment 1**

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL Ver. 6.76  
 Residue file name: C:\Dressac\108102c1.R96 (1989-92 data)  
 Adjustment factor #2 used.  
 Analysis Date 07-04-1999/19:00:01 Residue file dated: 07-04-1999/18:44:35/8  
 Reference dose (Rfd, CHRONIC) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA; Refined  
 w/anticipated residues; assessment 1 for popcorn.

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Total exposure by population subgroup

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Population Subgroup	mg/kg body wt/day	Total Exposure Percent of Rfd
U.S. Population (total)	0.000002	2.9%
U.S. Population (spring season)	0.000002	2.8%
U.S. Population (summer season)	0.000002	3.1%
U.S. Population (autumn season)	0.000002	2.9%
U.S. Population (winter season)	0.000002	2.6%
Northeast region	0.000001	2.2%
Midwest region	0.000002	3.2%
Southern region	0.000002	3.1%
Western region	0.000002	2.7%
Hispanics	0.000002	3.0%
Non-hispanic whites	0.000002	2.8%
Non-hispanic blacks	0.000002	3.1%
Non-hisp/non-white/non-black)	0.000001	2.2%
All infants (< 1 year)	0.000002	2.3%
Nursing infants	0.000000	0.5%
Non-nursing infants	0.000002	3.1%
Children 1-6 yrs	0.000004	5.9%
Children 7-12 yrs	0.000003	4.8%
Females 13-19(not preg or nursing)	0.000002	2.8%
Females 20+ (not preg or nursing)	0.000001	2.0%
Females 13-50 yrs	0.000002	2.3%
Females 13+ (preg/not nursing)	0.000001	1.7%
Females 13+ (nursing)	0.000002	3.2%
Males 13-19 yrs	0.000002	3.4%
Males 20+ yrs	0.000002	2.4%
Seniors 55+	0.000001	1.7%
Pacific Region	0.000002	2.6%

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## Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

## Popcorn Assessment 2

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file: C:\Dressac\108102c2.R96  
 Analysis Date 07-04-1999      Residue file dated: 07-04-1999/18:44:59/8  
 Reference dose (RfD) = 0.000067 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA; Includes refined ARs; corresponds to Assessment 2 for popcorn.

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	Adj.Factors	
				#1	#2
237	15	Corn/pop	2.510000	1.000	0.340
266	15	Corn grain-endosperm	0.014600	0.300	1.000
267	15	Corn grain-bran	0.014600	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	1.000	1.000
275	15	Sorghum (including milo)	3.900000	1.000	0.010
289	15	Corn grain-oil	0.014600	0.060	1.000
321	M	Beef-meat byproducts	0.000019	1.000	1.000
322	M	Beef-other organ meats	0.000019	1.000	1.000
324	M	Beef-fat w/o bones	0.000032	1.000	1.000
325	M	Beef-kidney	0.000019	1.000	1.000
326	M	Beef-liver	0.000014	1.000	1.000
328	M	Goat-meat byproducts	0.000019	1.000	1.000
329	M	Goat-other organ meats	0.000019	1.000	1.000
330	M	Goat-fat w/o bone	0.000032	1.000	1.000
331	M	Goat-kidney	0.000019	1.000	1.000
332	M	Goat-liver	0.000014	1.000	1.000
342	M	Pork-meat byproducts	0.000019	1.000	1.000
343	M	Pork-other organ meats	0.000019	1.000	1.000
344	M	Pork-fat w/o bone	0.000032	1.000	1.000
345	M	Pork-kidney	0.000019	1.000	1.000
346	M	Pork-liver	0.000014	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	1.000	1.000
388	15	Corn grain/sugar-molasses	0.000500	1.000	1.000
424	M	Veal-fat w/o bones	0.000032	1.000	1.000
426	M	Veal-kidney	0.000019	1.000	1.000
427	M	Veal-liver	0.000014	1.000	1.000
428	M	Veal-other organ meats	0.000019	1.000	1.000
430	M	Veal-meat byproducts	0.000019	1.000	1.000

Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

**Popcorn Assessment 2**

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL Ver. 6.76  
 Residue file name: C:\Dressac\108102c2.R96 (1989-92 data)  
 Analysis Date 07-04-1999/19:02:37 Adjustment factor #2 used.  
 Reference dose (RfD, CHRONIC) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Includes refined ARs; corresponds to Assessment 2 for popcorn.

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Total exposure by population subgroup

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Population Subgroup	mg/kg body wt/day	Total Exposure
	Percent of Rfd	
U.S. Population (total)	0.000021	31.9%
U.S. Population (spring season)	0.000019	28.5%
U.S. Population (summer season)	0.000025	37.8%
U.S. Population (autumn season)	0.000021	31.3%
U.S. Population (winter season)	0.000020	29.4%
Northeast region	0.000013	19.9%
Midwest region	0.000030	45.3%
Southern region	0.000022	33.0%
Western region	0.000018	26.2%
Hispanics	0.000011	16.6%
Non-hispanic whites	0.000024	35.4%
Non-hispanic blacks	0.000015	21.6%
Non-hisp/non-white/non-black)	0.000018	26.5%
All infants (< 1 year)	0.000002	2.3%
Nursing infants	0.000000	0.5%
Non-nursing infants	0.000002	3.1%
Children 1-6 yrs	0.000034	51.0%
Children 7-12 yrs	0.000032	47.8%
Females 13-19(not preg or nursing)	0.000019	28.9%
Females 20+ (not preg or nursing)	0.000019	27.7%
Females 13-50 yrs	0.000021	31.3%
Females 13+ (preg/not nursing)	0.000009	14.1%
Females 13+ (nursing)	0.000040	59.8%
Males 13-19 yrs	0.000027	40.7%
Males 20+ yrs	0.000018	27.3%
Seniors 55+	0.000012	18.2%
Pacific Region	0.000016	24.6%

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## Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

## Popcorn Assessment 3

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file: C:\Dressac\108102c3.R96  
 Analysis Date 07-04-1999      Residue file dated: 07-04-1999/18:45:37/8  
 Reference dose (RfD) = 0.000067 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA. Includes refined ARs; corresponds to Assessment 3 for popcorn.

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	Adj.Factors	
				#1	#2
237	15	Corn/pop	1.420000	1.000	1.000
266	15	Corn grain-endosperm	0.014600	0.300	1.000
267	15	Corn grain-bran	0.014600	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	1.000	1.000
275	15	Sorghum (including milo)	3.900000	1.000	0.010
289	15	Corn grain-oil	0.014600	0.060	1.000
321	M	Beef-meat byproducts	0.000019	1.000	1.000
322	M	Beef-other organ meats	0.000019	1.000	1.000
324	M	Beef-fat w/o bones	0.000032	1.000	1.000
325	M	Beef-kidney	0.000019	1.000	1.000
326	M	Beef-liver	0.000014	1.000	1.000
328	M	Goat-meat byproducts	0.000019	1.000	1.000
329	M	Goat-other organ meats	0.000019	1.000	1.000
330	M	Goat-fat w/o bone	0.000032	1.000	1.000
331	M	Goat-kidney	0.000019	1.000	1.000
332	M	Goat-liver	0.000014	1.000	1.000
342	M	Pork-meat byproducts	0.000019	1.000	1.000
343	M	Pork-other organ meats	0.000019	1.000	1.000
344	M	Pork-fat w/o bone	0.000032	1.000	1.000
345	M	Pork-kidney	0.000019	1.000	1.000
346	M	Pork-liver	0.000014	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	1.000	1.000
388	15	Corn grain/sugar-molasses	0.000500	1.000	1.000
424	M	Veal-fat w/o bones	0.000032	1.000	1.000
426	M	Veal-kidney	0.000019	1.000	1.000
427	M	Veal-liver	0.000014	1.000	1.000
428	M	Veal-other organ meats	0.000019	1.000	1.000
430	M	Veal-meat byproducts	0.000019	1.000	1.000

Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

**Popcorn Assessment 3**

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL Ver. 6.76  
 Residue file name: C:\Dressac\108102c3.R96 (1989-92 data)  
 Analysis Date 07-04-1999/19:01:33 Adjustment factor #2 used.  
 Reference dose (RfD, CHRONIC) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA.  
 Includes refined ARs; corresponds to Assessment 3 for popcorn.

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Total exposure by population subgroup

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Population Subgroup	mg/kg body wt/day	Total Exposure
	Percent of Rfd	
U.S. Population (total)	0.000035	51.8%
U.S. Population (spring season)	0.000031	46.0%
U.S. Population (summer season)	0.000041	61.6%
U.S. Population (autumn season)	0.000034	50.8%
U.S. Population (winter season)	0.000032	47.8%
Northeast region	0.000021	32.0%
Midwest region	0.000050	74.2%
Southern region	0.000036	53.4%
Western region	0.000028	42.3%
Hispanics	0.000017	25.9%
Non-hispanic whites	0.000039	57.6%
Non-hispanic blacks	0.000023	34.3%
Non-hisp/non-white/non-black)	0.000029	43.2%
All infants (< 1 year)	0.000002	2.3%
Nursing infants	0.000000	0.5%
Non-nursing infants	0.000002	3.1%
Children 1-6 yrs	0.000055	81.8%
Children 7-12 yrs	0.000052	77.2%
Females 13-19(not preg or nursing)	0.000031	46.7%
Females 20+ (not preg or nursing)	0.000030	45.3%
Females 13-50 yrs	0.000034	51.2%
Females 13+ (preg/not nursing)	0.000015	22.6%
Females 13+ (nursing)	0.000066	98.6%
Males 13-19 yrs	0.000044	66.1%
Males 20+ yrs	0.000030	44.4%
Seniors 55+	0.000020	29.6%
Pacific Region	0.000027	39.6%

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Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

Popcorn Assessment 4

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL  
 Residue file: C:\Dressac\108102c4.R96  
 Analysis Date 07-05-1999      Residue file dated: 07-04-1999/18:45:58/8  
 Reference dose (RfD) = 0.000067 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA. Includes refined ARs, corresponds to Assessment 4 for popcorn.

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	Adj.Factors	
				#1	#2
237	15	Corn/pop	2.510000	1.000	1.000
266	15	Corn grain-endosperm	0.014600	0.300	1.000
267	15	Corn grain-bran	0.014600	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	1.000	1.000
275	15	Sorghum (including milo)	3.900000	1.000	0.010
289	15	Corn grain-oil	0.014600	0.060	1.000
321	M	Beef-meat byproducts	0.000019	1.000	1.000
322	M	Beef-other organ meats	0.000019	1.000	1.000
324	M	Beef-fat w/o bones	0.000032	1.000	1.000
325	M	Beef-kidney	0.000019	1.000	1.000
326	M	Beef-liver	0.000014	1.000	1.000
328	M	Goat-meat byproducts	0.000019	1.000	1.000
329	M	Goat-other organ meats	0.000019	1.000	1.000
330	M	Goat-fat w/o bone	0.000032	1.000	1.000
331	M	Goat-kidney	0.000019	1.000	1.000
332	M	Goat-liver	0.000014	1.000	1.000
342	M	Pork-meat byproducts	0.000019	1.000	1.000
343	M	Pork-other organ meats	0.000019	1.000	1.000
344	M	Pork-fat w/o bone	0.000032	1.000	1.000
345	M	Pork-kidney	0.000019	1.000	1.000
346	M	Pork-liver	0.000014	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	1.000	1.000
388	15	Corn grain/sugar-molasses	0.000500	1.000	1.000
424	M	Veal-fat w/o bones	0.000032	1.000	1.000
426	M	Veal-kidney	0.000019	1.000	1.000
427	M	Veal-liver	0.000014	1.000	1.000
428	M	Veal-other organ meats	0.000019	1.000	1.000
430	M	Veal-meat byproducts	0.000019	1.000	1.000

Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

**Popcorn Assessment 4**

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL Ver. 6.76  
 Residue file name: C:\Dressac\108102c4.R96 (1989-92 data)  
 Analysis Date 07-05-1999/13:55:03 Adjustment factor #2 used.  
 Reference dose (RfD, CHRONIC) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA.  
 Includes refined ARs, corresponds to Assessment 4 for popcorn.

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Total exposure by population subgroup

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Population Subgroup	mg/kg body wt/day	Total Exposure
	Percent of Rfd	
U.S. Population (total)	0.000060	90.0%
U.S. Population (spring season)	0.000053	79.8%
U.S. Population (summer season)	0.000072	107.3%
U.S. Population (autumn season)	0.000059	88.2%
U.S. Population (winter season)	0.000056	83.0%
Northeast region	0.000037	55.2%
Midwest region	0.000087	129.6%
Southern region	0.000062	92.7%
Western region	0.000049	73.3%
Hispanics	0.000029	43.8%
Non-hispanic whites	0.000067	100.4%
Non-hispanic blacks	0.000039	58.7%
Non-hisp/non-white/non-black)	0.000050	75.2%
All infants (< 1 year)	0.000002	2.3%
Nursing infants	0.000000	0.5%
Non-nursing infants	0.000002	3.1%
Children 1-6 yrs	0.000094	141.0%
Children 7-12 yrs	0.000090	133.8%
Females 13-19(not preg or nursing)	0.000054	81.1%
Females 20+ (not preg or nursing)	0.000053	79.2%
Females 13-50 yrs	0.000060	89.4%
Females 13+ (preg/not nursing)	0.000026	39.0%
Females 13+ (nursing)	0.000116	173.1%
Males 13-19 yrs	0.000077	115.1%
Males 20+ yrs	0.000052	77.2%
Seniors 55+	0.000034	51.4%
Pacific Region	0.000046	68.4%

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Attachment 4: Chronic Tier 3 Analyses--Popcorn Assessments 1-4.

**Popcorn Assessment 4**

U.S. Environmental Protection Agency  
 DEEM Chronic analysis for PIRIMIPHOS-METHYL Ver. 6.76  
 (1989-92 data)  
 Residue file name: C:\Dressac\108102c4.R96 Adjustment factor #2 used.  
 Analysis Date 07-05-1999/14:03:23 Residue file dated: 07-04-1999/18:45:58/8  
 Reference dose (RfD, CHRONIC) = .000067 mg/kg bw/day  
 COMMENT 1: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA.  
 Includes refined ARs; corresponds to Assessment 4 for popcorn.

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Critical Commodity Contribution Analysis for  
 U.S. Population (total)

Total Exposure = .0000603 mg/kg bw/day

Crop groups with total exposure contribution > 10%  
 Foods/Foodforms with exposure contribution > 10%

Crop group Food Foodform	Exposure Analysis		
	mg/kg body wt/day	% of Total Exposure	Percent of RfD
Crop Group = (15) Cereal Grains Corn/pop	0.0000590	97.80%	88.03%
Total for crop group	0.0000603	99.98%	90.00%
Total for crop groups listed above:	0.0000603	99.98%	90.0%

Critical Commodity Contribution Analysis for  
 Children 1-6 yrs

Total Exposure = .0000945 mg/kg bw/day

Crop groups with total exposure contribution > 10%  
 Foods/Foodforms with exposure contribution > 10%

Crop group Food Foodform	Exposure Analysis		
	mg/kg body wt/day	% of Total Exposure	Percent of RfD
Crop Group = (15) Cereal Grains Corn/pop	0.0000914	96.77%	136.48%
Total for crop group	0.0000945	99.98%	141.01%
Total for crop groups listed above:	0.0000945	99.98%	141.0%

Critical Commodity Contribution Analysis for  
 Children 7-12 yrs

Total Exposure = .0000897 mg/kg bw/day

Crop groups with total exposure contribution > 10%  
 Foods/Foodforms with exposure contribution > 10%

Crop group Food Foodform	Exposure Analysis		
	mg/kg body wt/day	% of Total Exposure	Percent of RfD
Crop Group = (15) Cereal Grains Corn/pop	0.0000873	97.36%	130.30%
Total for crop group	0.0000896	99.98%	133.80%
Total for crop groups listed above:	0.0000896	99.98%	133.8%

## Attachment 5: Acute Tier 1 Analysis--Reassessed Tolerances.

U.S. Environmental Protection Agency  
 DEEM Acute analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102r1.R96  
 Analysis Date 07-05-1999  
 Reference dose: aRfd = 0.005 mg/kg bw/day NOEL = 15 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Reassessed tolerances (Tier 1).

Food	Crop		RESIDUE (ppm)	RDF #	Adj. Factors #1	Code #2
	Grp	Food Name				
237	15	Corn/pop	8.000000	0	1.000	1.000
266	15	Corn grain-endosperm	8.000000	0	0.300	1.000
267	15	Corn grain-bran	8.000000	0	1.000	1.000
268	15	Corn grain/sugar/hfcs	8.000000	0	1.000	1.000
275	15	Sorghum (including milo)	8.000000	0	1.000	1.000
289	15	Corn grain-oil	8.000000	0	0.060	1.000
321	M	Beef-meat byproducts	0.040000	0	1.000	1.000
322	M	Beef-other organ meats	0.040000	0	1.000	1.000
324	M	Beef-fat w/o bones	0.040000	0	1.000	1.000
325	M	Beef-kidney	0.040000	0	1.000	1.000
326	M	Beef-liver	0.040000	0	1.000	1.000
328	M	Goat-meat byproducts	0.040000	0	1.000	1.000
329	M	Goat-other organ meats	0.040000	0	1.000	1.000
330	M	Goat-fat w/o bone	0.040000	0	1.000	1.000
331	M	Goat-kidney	0.040000	0	1.000	1.000
332	M	Goat-liver	0.040000	0	1.000	1.000
342	M	Pork-meat byproducts	0.040000	0	1.000	1.000
343	M	Pork-other organ meats	0.040000	0	1.000	1.000
344	M	Pork-fat w/o bone	0.040000	0	1.000	1.000
345	M	Pork-kidney	0.040000	0	1.000	1.000
346	M	Pork-liver	0.040000	0	1.000	1.000
357	P	Turkey--fat w/o bones	0.040000	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.040000	0	1.000	1.000
368	P	Chicken-fat w/o bones	0.040000	0	1.000	1.000
388	15	Corn grain/sugar-molasses	8.000000	0	1.000	1.000
424	M	Veal-fat w/o bones	0.040000	0	1.000	1.000
426	M	Veal-kidney	0.040000	0	1.000	1.000
427	M	Veal-liver	0.040000	0	1.000	1.000
428	M	Veal-other organ meats	0.040000	0	1.000	1.000
430	M	Veal-meat byproducts	0.040000	0	1.000	1.000

### Attachment 5: Acute Tier 1 Analysis--Reassessed Tolerances.

U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for PIRIMIPHOS-METHYL  
 Residue file: 108102r1.R96 Ver. 6.78  
 (1989-92 data)  
 Adjustment factor #2 NOT used.  
 Analysis Date: 07-05-1999/13:04:53 Residue file dated: 07-04-1999/19:24:01/8  
 Acute Reference Dose (aRfD) = 0.005000 mg/kg body-wt/day  
 NOEL (Acute) = 15.000000 mg/kg body-wt/day  
 Run Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and  
 3X for FQPA; Reassessed tolerances (Tier 1).  
 =====

#### Summary calculations:

	95th Percentile			99th Percentile			99.9th Percentile		
	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
U.S. pop - all seasons:									
0.019524	390.48	768		0.036311	726.21	413	0.060212	1204.24	249
All infants (<1 year):									
0.049357	987.15	303		0.068916	1378.31	217	0.101438	2028.77	147
Nursing infants (<1 year):									
0.016215	324.30	925		0.027528	550.56	544	0.032850	657.00	456
Non-nursing infants (<1 yr):									
0.052105	1042.10	287		0.069709	1394.17	215	0.103020	2060.40	145
Children (1-6 years):									
0.037433	748.66	400		0.055248	1104.96	271	0.075193	1503.86	199
Children (7-12 years):									
0.027216	544.32	551		0.037741	754.83	397	0.057219	1144.38	262
Females (13-19 yrs/np/nn):									
0.016340	326.79	918		0.022125	442.49	677	0.031963	639.27	469
Females (20+ years/np/nn):									
0.011013	220.25	1362		0.017523	350.46	856	0.029279	585.59	512
Females (13-50 years):									
0.013017	260.34	1152		0.019352	387.05	775	0.028826	576.52	520
Males (13-19 years):									
0.019612	392.23	764		0.032969	659.38	454	0.045724	914.47	328
Males (20+ years):									
0.012203	244.07	1229		0.019437	388.74	771	0.028932	578.64	518

Attachment 6: Acute Tier 1 Analysis--Reassessed Tolerances, Excluding HFCS and Sugar/Molasses.

U.S. Environmental Protection Agency  
 DEEM Acute analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102r2.R96  
 Analysis Date 07-05-1999      Residue file dated: 07-04-1999/19:24:19/8  
 Reference dose: aRfd = 0.005 mg/kg bw/day   NOEL = 15 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Reassessed tolerances, excludes HFCS and sugar/molasses.

Food	Crop		RESIDUE (ppm)	RDF #	Adj. Factors #1	Code #2
	Grp	Food Name				
237	15	Corn/pop	8.000000	0	1.000	1.000
266	15	Corn grain-endosperm	8.000000	0	0.300	1.000
267	15	Corn grain-bran	8.000000	0	1.000	1.000
275	15	Sorghum (including milo)	8.000000	0	1.000	1.000
289	15	Corn grain-oil	8.000000	0	0.060	1.000
321	M	Beef-meat byproducts	0.040000	0	1.000	1.000
322	M	Beef-other organ meats	0.040000	0	1.000	1.000
324	M	Beef-fat w/o bones	0.040000	0	1.000	1.000
325	M	Beef-kidney	0.040000	0	1.000	1.000
326	M	Beef-liver	0.040000	0	1.000	1.000
328	M	Goat-meat byproducts	0.040000	0	1.000	1.000
329	M	Goat-other organ meats	0.040000	0	1.000	1.000
330	M	Goat-fat w/o bone	0.040000	0	1.000	1.000
331	M	Goat-kidney	0.040000	0	1.000	1.000
332	M	Goat-liver	0.040000	0	1.000	1.000
342	M	Pork-meat byproducts	0.040000	0	1.000	1.000
343	M	Pork-other organ meats	0.040000	0	1.000	1.000
344	M	Pork-fat w/o bone	0.040000	0	1.000	1.000
345	M	Pork-kidney	0.040000	0	1.000	1.000
346	M	Pork-liver	0.040000	0	1.000	1.000
357	P	Turkey--fat w/o bones	0.040000	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.040000	0	1.000	1.000
368	P	Chicken-fat w/o bones	0.040000	0	1.000	1.000
424	M	Veal-fat w/o bones	0.040000	0	1.000	1.000
426	M	Veal-kidney	0.040000	0	1.000	1.000
427	M	Veal-liver	0.040000	0	1.000	1.000
428	M	Veal-other organ meats	0.040000	0	1.000	1.000
430	M	Veal-meat byproducts	0.040000	0	1.000	1.000

## Attachment 6: Acute Tier 1 Analysis--Reassessed Tolerances, Excluding HFCS and Sugar/Molasses.

U.S. Environmental Protection Agency Ver. 6.78  
DEEM ACUTE analysis for PIRIMIPHOS-METHYL (1989-92 data)  
Residue file: 108102r2.R96 Adjustment factor #2 NOT used.  
Analysis Date: 07-05-1999/13:09:13 Residue file dated: 07-04-1999/19:24:19/8  
Acute Reference Dose (aRFD) = 0.005000 mg/kg body-wt/day  
NOEL (Acute) = 15.000000 mg/kg body-wt/day  
Run Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and  
3X for FQPA; Reassessed tolerances, excludes HFCS and sugar/molasses.

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### Summary calculations:

Exposure	95th Percentile		Exposure	99th Percentile		Exposure	99.9th Percentile	
	% aRfD	MOE		% aRfD	MOE		% aRfD	MOE
<b>U.S. pop - all seasons:</b>								
0.003348	66.96	4480	0.007764	155.28	1931	0.015920	318.39	942
<b>All infants (&lt;1 year):</b>								
0.002008	40.16	7469	0.005279	105.58	2841	0.009194	183.89	1631
<b>Nursing infants (&lt;1 year):</b>								
0.000654	13.07	22951	0.001095	21.90	13701	0.001482	29.64	10121
<b>Non-nursing infants (&lt;1 yr):</b>								
0.002208	44.16	6793	0.005867	117.34	2556	0.009038	180.75	1659
<b>Children (1-6 years):</b>								
0.005705	114.10	2629	0.013616	272.31	1101	0.024100	481.99	622
<b>Children (7-12 years):</b>								
0.005140	102.81	2918	0.010042	200.85	1493	0.015463	309.25	970
<b>Females (13-19 yrs/np/nn):</b>								
0.003201	64.02	4685	0.008092	161.84	1853	0.011570	231.41	1296
<b>Females (20+ years/np/nn):</b>								
0.002332	46.65	6431	0.005775	115.49	2597	0.011647	232.93	1287
<b>Females (13-50 years):</b>								
0.002671	53.41	5616	0.006183	123.67	2425	0.012335	246.70	1216
<b>Males (13-19 years):</b>								
0.003721	74.42	4031	0.007297	145.93	2055	0.015466	309.31	969
<b>Males (20+ years):</b>								
0.002768	55.36	5418	0.006897	137.94	2174	0.012025	240.50	1247

Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

Popcorn Assessment 1

U.S. Environmental Protection Agency  
 DEEM Acute analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102m1.R96  
 Analysis Date 07-04-1999  
 Reference dose: aRFD = 0.005 mg/kg bw/day NOEL = 15 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Probabilistic. Corresponds to assessment 1 for popcorn.

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RDF indices and file names for Monte Carlo Analysis  
 1 pmcorn.rdf

Food	Crop		RESIDUE	RDF	Adj.Factors	Code
Grp		Food Name	(ppm)	#	#1	#2
237	15	Corn/pop	0.025100	0	1.000	1.000
266	15	Corn grain-endosperm	0.014600	1	0.300	1.000
267	15	Corn grain-bran	0.014600	1	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	0	1.000	1.000
275	15	Sorghum (including milo)	0.078000	0	1.000	1.000
289	15	Corn grain-oil	0.014600	1	0.060	1.000
321	M	Beef-meat byproducts	0.000041	0	1.000	1.000
322	M	Beef-other organ meats	0.000041	0	1.000	1.000
324	M	Beef-fat w/o bones	0.000068	0	1.000	1.000
325	M	Beef-kidney	0.000041	0	1.000	1.000
326	M	Beef-liver	0.000036	0	1.000	1.000
328	M	Goat-meat byproducts	0.000041	0	1.000	1.000
329	M	Goat-other organ meats	0.000041	0	1.000	1.000
330	M	Goat-fat w/o bone	0.000068	0	1.000	1.000
331	M	Goat-kidney	0.000041	0	1.000	1.000
332	M	Goat-liver	0.000036	0	1.000	1.000
342	M	Pork-meat byproducts	0.000041	0	1.000	1.000
343	M	Pork-other organ meats	0.000041	0	1.000	1.000
344	M	Pork-fat w/o bone	0.000068	0	1.000	1.000
345	M	Pork-kidney	0.000041	0	1.000	1.000
346	M	Pork-liver	0.000036	0	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	0	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	0	1.000	1.000
388	15	Corn grain/sugar-molasses	0.000500	0	1.000	1.000
424	M	Veal-fat w/o bones	0.000068	0	1.000	1.000
426	M	Veal-kidney	0.000041	0	1.000	1.000
427	M	Veal-liver	0.000036	0	1.000	1.000
428	M	Veal-other organ meats	0.000041	0	1.000	1.000
430	M	Veal-meat byproducts	0.000041	0	1.000	1.000

Summary of Residue Distribution Files (RDF) listed in C:\Dressac\108102m1.R96

RDF	File	N residues	N residues	N LODs	LOD	N Zeros
#	Name	w freq's	w/o freq's		Value	
1	pmcorn.rdf	0	9	0	0.005	0

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 1

U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for PIRIMIPHOS-METHYL  
 Residue file: 108102ml.R96 Ver. 6.78  
 (1989-92 data)  
 Adjustment factor #2 NOT used.  
 Analysis Date: 07-04-1999/20:04:13 Residue file dated: 07-04-1999/18:55:18/8  
 Acute Reference Dose (aRfD) = 0.005000 mg/kg body-wt/day  
 NOEL (Acute) = 15.000000 mg/kg body-wt/day  
 MC iterations = 1000 MC list in residue file MC seed = 1026  
 Run Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and  
 3X for FQPA; Probabilistic. Corresponds to assessment 1 for popcorn.  
 =====

## Summary calculations:

Exposure	95th Percentile		99th Percentile		99.9th Percentile			
	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
<b>U.S. pop - all seasons:</b>								
0.000242	4.83	62051	0.000898	17.97	16694	0.002559	51.17	5862
<b>All infants (&lt;1 year):</b>								
0.000152	3.04	98592	0.000719	14.38	20859	0.002664	53.28	5630
<b>Nursing infants (&lt;1 year):</b>								
0.000014	0.28	>1000000	0.000185	3.69	81193	0.000584	11.67	25699
<b>Non-nursing infants (&lt;1 yr):</b>								
0.000200	4.01	74870	0.001048	20.95	14318	0.002884	57.67	5201
<b>Children (1-6 years):</b>								
0.000545	10.90	27513	0.001839	36.77	8158	0.004017	80.33	3734
<b>Children (7-12 years):</b>								
0.000459	9.19	32660	0.001349	26.98	11117	0.003158	63.16	4749
<b>Females (13-19 yrs/np/nn):</b>								
0.000249	4.98	60197	0.000888	17.77	16882	0.002684	53.67	5589
<b>Females (20+ years/np/nn):</b>								
0.000135	2.70	111108	0.000574	11.49	26110	0.001568	31.35	9568
<b>Females (13-50 years):</b>								
0.000158	3.16	94855	0.000656	13.11	22882	0.001786	35.73	8397
<b>Males (13-19 years):</b>								
0.000277	5.53	54228	0.000924	18.49	16225	0.002225	44.49	6742
<b>Males (20+ years):</b>								
0.000218	4.35	68945	0.000752	15.05	19936	0.002121	42.43	7071

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 2

U.S. Environmental Protection Agency  
 DEEM Acute analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102m2.R96  
 Analysis Date 07-04-1999  
 Reference dose: aRfD = 0.005 mg/kg bw/day NOEL = 15 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Includes ARs, Assessment 2 for popcorn.

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RDF indices and file names for Monte Carlo Analysis  
 1 pmcorn.rdf

Food	Crop		RESIDUE	RDF	Adj.Factors	Code
Grp	Food	Name	(ppm)	#	#1	#2
237	15	Corn/pop	0.853000	0	1.000	1.000
266	15	Corn grain-endosperm	0.014600	1	0.300	1.000
267	15	Corn grain-bran	0.014600	1	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	0	1.000	1.000
275	15	Sorghum (including milo)	0.078000	0	1.000	1.000
289	15	Corn grain-oil	0.014600	1	0.060	1.000
321	M	Beef-meat byproducts	0.000041	0	1.000	1.000
322	M	Beef-other organ meats	0.000041	0	1.000	1.000
324	M	Beef-fat w/o bones	0.000068	0	1.000	1.000
325	M	Beef-kidney	0.000041	0	1.000	1.000
326	M	Beef-liver	0.000036	0	1.000	1.000
328	M	Goat-meat byproducts	0.000041	0	1.000	1.000
329	M	Goat-other organ meats	0.000041	0	1.000	1.000
330	M	Goat-fat w/o bone	0.000068	0	1.000	1.000
331	M	Goat-kidney	0.000041	0	1.000	1.000
332	M	Goat-liver	0.000036	0	1.000	1.000
342	M	Pork-meat byproducts	0.000041	0	1.000	1.000
343	M	Pork-other organ meats	0.000041	0	1.000	1.000
344	M	Pork-fat w/o bone	0.000068	0	1.000	1.000
345	M	Pork-kidney	0.000041	0	1.000	1.000
346	M	Pork-liver	0.000036	0	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	0	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	0	1.000	1.000
388	15	Corn grain/sugar/molasses	0.000500	0	1.000	1.000
424	M	Veal-fat w/o bones	0.000068	0	1.000	1.000
426	M	Veal-kidney	0.000041	0	1.000	1.000
427	M	Veal-liver	0.000036	0	1.000	1.000
428	M	Veal-other organ meats	0.000041	0	1.000	1.000
430	M	Veal-meat byproducts	0.000041	0	1.000	1.000

Summary of Residue Distribution Files (RDF) listed in C:\Dressac\108102m2.R96

RDF	File	N residues	N residues	N LODs	LOD	N Zeros
#	Name	w freq's	w/o freq's		Value	
1	pmcorn.rdf	0	9	0	0.005	0

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 2

U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for PIRIMIPHOS-METHYL  
 Residue file: 108102m2.R96 Ver. 6.78  
 (1989-92 data)  
 Adjustment factor #2 NOT used.  
 Analysis Date: 07-04-1999/21:18:28 Residue file dated: 07-04-1999/18:54:50/8  
 Acute Reference Dose (aRfD) = 0.005000 mg/kg body-wt/day  
 NOEL (Acute) = 15.000000 mg/kg body-wt/day  
 MC iterations = 1000 MC list in residue file MC seed = 1026  
 Run Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and  
 3X for FQPA; Includes ARs, Assessment 2 for popcorn.  
 =====

## Summary calculations:

Exposure	95th Percentile		99th Percentile		99.9th Percentile			
	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
<b>U.S. pop - all seasons:</b>								
0.000402	8.04	37331	0.001111	22.23	13495	0.002678	53.56	5601
<b>All infants (&lt;1 year):</b>								
0.000152	3.04	98592	0.000719	14.38	20859	0.002664	53.28	5630
<b>Nursing infants (&lt;1 year):</b>								
0.000014	0.28	>1000000	0.000185	3.69	81193	0.000584	11.67	25699
<b>Non-nursing infants (&lt;1 yr):</b>								
0.000200	4.01	74870	0.001048	20.95	14318	0.002884	57.67	5201
<b>Children (1-6 years):</b>								
0.000796	15.93	18838	0.002103	42.07	7131	0.004168	83.36	3599
<b>Children (7-12 years):</b>								
0.000686	13.72	21869	0.001533	30.67	9782	0.003214	64.28	4667
<b>Females (13-19 yrs/np/nn):</b>								
0.000404	8.08	37112	0.001043	20.87	14375	0.002698	53.97	5558
<b>Females (20+ years/np/nn):</b>								
0.000286	5.71	52507	0.000793	15.86	18916	0.001773	35.47	8458
<b>Females (13-50 years):</b>								
0.000325	6.51	46102	0.000898	17.95	16711	0.001990	39.81	7536
<b>Males (13-19 years):</b>								
0.000469	9.38	31988	0.001059	21.17	14167	0.002314	46.28	6482
<b>Males (20+ years):</b>								
0.000353	7.06	42477	0.000926	18.53	16193	0.002192	43.85	6842

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 3

U.S. Environmental Protection Agency  
 DEEM Acute analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102m3.R96  
 Analysis Date 07-04-1999  
 Reference dose: aRfD = 0.005 mg/kg bw/day NOEL = 15 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA;  
 Incorporates ARs; corresponds to Assessment 3 for popcorn.

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RDF indices and file names for Monte Carlo Analysis  
 1 pmcorn.rdf

Food	Crop		RESIDUE	RDF	Adj.Factors	Code
Grp	Food	Name	(ppm)	#	#1	#2
237	15	Corn/pop	1.420000	0	1.000	1.000
266	15	Corn grain-endosperm	0.014600	1	0.300	1.000
267	15	Corn grain-bran	0.014600	1	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	0	1.000	1.000
275	15	Sorghum (including milo)	0.078000	0	1.000	1.000
289	15	Corn grain-oil	0.014600	1	0.060	1.000
321	M	Beef-meat byproducts	0.000041	0	1.000	1.000
322	M	Beef-other organ meats	0.000041	0	1.000	1.000
324	M	Beef-fat w/o bones	0.000068	0	1.000	1.000
325	M	Beef-kidney	0.000041	0	1.000	1.000
326	M	Beef-liver	0.000036	0	1.000	1.000
328	M	Goat-meat byproducts	0.000041	0	1.000	1.000
329	M	Goat-other organ meats	0.000041	0	1.000	1.000
330	M	Goat-fat w/o bone	0.000068	0	1.000	1.000
331	M	Goat-kidney	0.000041	0	1.000	1.000
332	M	Goat-liver	0.000036	0	1.000	1.000
342	M	Pork-meat byproducts	0.000041	0	1.000	1.000
343	M	Pork-other organ meats	0.000041	0	1.000	1.000
344	M	Pork-fat w/o bone	0.000068	0	1.000	1.000
345	M	Pork-kidney	0.000041	0	1.000	1.000
346	M	Pork-liver	0.000036	0	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	0	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	0	1.000	1.000
388	15	Corn grain/sugar/molasses	0.000500	0	1.000	1.000
424	M	Veal-fat w/o bones	0.000068	0	1.000	1.000
426	M	Veal-kidney	0.000041	0	1.000	1.000
427	M	Veal-liver	0.000036	0	1.000	1.000
428	M	Veal-other organ meats	0.000041	0	1.000	1.000
430	M	Veal-meat byproducts	0.000041	0	1.000	1.000

Summary of Residue Distribution Files (RDF) listed in C:\Dressac\108102m2.R96

RDF	File	N residues	N residues	N LODs	LOD	N Zeros
#	Name	w freq's	w/o freq's		Value	
1	pmcorn.rdf	0	9	0	0.005	0

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 3

U.S. Environmental Protection Agency Ver. 6.78  
DEEM ACUTE analysis for PIRIMIPHOS-METHYL (1989-92 data)  
Residue file: 108102m3.R96 Adjustment factor #2 NOT used.  
Analysis Date: 07-04-1999/23:33:03 Residue file dated: 07-04-1999/18:54:22/8  
Acute Reference Dose (aRfD) = 0.005000 mg/kg body-wt/day  
NOEL (Acute) = 15.000000 mg/kg body-wt/day  
MC iterations = 1000 MC list in residue file MC seed = 1026  
Run Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and  
3X for FQPA; incorporates ARs; corresponds to Assessment 3 for popcorn.  
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### Summary calculations:

Exposure	95th Percentile		Exposure	99th Percentile		Exposure	99.9th Percentile	
	% aRfD	MOE		% aRfD	MOE		% aRfD	MOE
<b>U.S. pop - all seasons:</b>								
0.000496	9.93	30213	0.001418	28.36	10577	0.003102	62.04	4835
<b>All infants (&lt;1 year):</b>								
0.000152	3.04	98592	0.000719	14.38	20859	0.002664	53.28	5630
<b>Nursing infants (&lt;1 year):</b>								
0.000014	0.28	>1000000	0.000185	3.69	81193	0.000584	11.67	25699
<b>Non-nursing infants (&lt;1 yr):</b>								
0.000200	4.01	74870	0.001048	20.95	14318	0.002884	57.67	5201
<b>Children (1-6 years):</b>								
0.000979	19.58	15319	0.002526	50.53	5937	0.004774	95.49	3141
<b>Children (7-12 years):</b>								
0.000865	17.30	17342	0.001983	39.65	7565	0.003415	68.31	4391
<b>Females (13-19 yrs/np/nn):</b>								
0.000502	10.04	29871	0.001390	27.80	10791	0.002701	54.02	5553
<b>Females (20+ years/np/nn):</b>								
0.000369	7.37	40699	0.001092	21.83	13742	0.002185	43.70	6865
<b>Females (13-50 years):</b>								
0.000435	8.69	34519	0.001192	23.84	12582	0.002531	50.61	5927
<b>Males (13-19 years):</b>								
0.000663	13.26	22625	0.001337	26.74	11219	0.002749	54.97	5457
<b>Males (20+ years):</b>								
0.000430	8.60	34895	0.001259	25.18	11915	0.002471	49.42	6070

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 4

U.S. Environmental Protection Agency  
 DEEM Acute analysis for PIRIMIPHOS-METHYL  
 Residue file name: C:\Dressac\108102m4.R96  
 Analysis Date 07-05-1999  
 Reference dose: aRfD = 0.005 mg/kg bw/day NOEL = 15 mg/kg bw/day  
 Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and 3X for FQPA.  
 Includes refined ARs; Corresponds to Assessment 4 for popcorn.

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RDF indices and file names for Monte Carlo Analysis  
 1 pmcorn.rdf

Food	Crop		RESIDUE	RDF	Adj.Factors	Code
Grp	Food	Name	(ppm)	#	#1	#2
237	15	Corn/pop	2.510000	0	1.000	1.000
266	15	Corn grain-endosperm	0.014600	1	0.300	1.000
267	15	Corn grain-bran	0.014600	1	1.000	1.000
268	15	Corn grain/sugar/hfcs	0.000500	0	1.000	1.000
275	15	Sorghum (including milo)	0.078000	0	1.000	1.000
289	15	Corn grain-oil	0.014600	1	0.060	1.000
321	M	Beef-meat byproducts	0.000041	0	1.000	1.000
322	M	Beef-other organ meats	0.000041	0	1.000	1.000
324	M	Beef-fat w/o bones	0.000068	0	1.000	1.000
325	M	Beef-kidney	0.000041	0	1.000	1.000
326	M	Beef-liver	0.000036	0	1.000	1.000
328	M	Goat-meat byproducts	0.000041	0	1.000	1.000
329	M	Goat-other organ meats	0.000041	0	1.000	1.000
330	M	Goat-fat w/o bone	0.000068	0	1.000	1.000
331	M	Goat-kidney	0.000041	0	1.000	1.000
332	M	Goat-liver	0.000036	0	1.000	1.000
342	M	Pork-meat byproducts	0.000041	0	1.000	1.000
343	M	Pork-other organ meats	0.000041	0	1.000	1.000
344	M	Pork-fat w/o bone	0.000068	0	1.000	1.000
345	M	Pork-kidney	0.000041	0	1.000	1.000
346	M	Pork-liver	0.000036	0	1.000	1.000
357	P	Turkey--fat w/o bones	0.000014	0	1.000	1.000
362	P	Poultry-other-fat w/o bones	0.000014	0	1.000	1.000
368	P	Chicken-fat w/o bones	0.000014	0	1.000	1.000
388	15	Corn grain/sugar-molasses	0.000500	0	1.000	1.000
424	M	Veal-fat w/o bones	0.000068	0	1.000	1.000
426	M	Veal-kidney	0.000041	0	1.000	1.000
427	M	Veal-liver	0.000036	0	1.000	1.000
428	M	Veal-other organ meats	0.000041	0	1.000	1.000
430	M	Veal-meat byproducts	0.000041	0	1.000	1.000

Summary of Residue Distribution Files (RDF) listed in C:\Dressac\108102m3.R96

RDF	File	N residues	N residues	N LODs	LOD	N Zeros
#	Name	w freq's	w/o freq's		Value	
1	pmcorn.rdf	0	9	0	0.005	0

## Attachment 7: Acute Probabilistic (Tier 3) Analysis--Popcorn Assessments 1-4.

## Popcorn Assessment 4

U.S. Environmental Protection Agency  
 DEEM ACUTE analysis for PIRIMIPHOS-METHYL  
 Residue file: 108102m4.R96 Ver. 6.78  
 (1989-92 data)  
 Adjustment factor #2 NOT used.  
 Analysis Date: 07-05-1999/11:46:03 Residue file dated: 07-04-1999/18:53:57/8  
 Acute Reference Dose (aRfD) = 0.005000 mg/kg body-wt/day  
 NOEL (Acute) = 15.000000 mg/kg body-wt/day  
 MC iterations = 1000 MC list in residue file MC seed = 1026  
 Run Comment: Acute and Chronic, both LOAELs; PADs include UFs of 10X, 10X and  
 3X for FQPA. Includes refined ARs; corresponds to Assessment 4 for popcorn.  
 =====

## Summary calculations:

Exposure	95th Percentile		99th Percentile		99.9th Percentile			
	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
<b>U.S. pop - all seasons:</b>								
0.000648	12.95	23164	0.002087	41.74	7187	0.004591	91.83	3266
<b>All infants (&lt;1 year):</b>								
0.000152	3.04	98592	0.000719	14.38	20859	0.002664	53.28	5630
<b>Nursing infants (&lt;1 year):</b>								
0.000014	0.28	>1000000	0.000185	3.69	81193	0.000584	11.67	25699
<b>Non-nursing infants (&lt;1 yr):</b>								
0.000200	4.01	74870	0.001048	20.95	14318	0.002884	57.67	5201
<b>Children (1-6 years):</b>								
0.001237	24.75	12123	0.003369	67.38	4452	0.007040	140.81	2130
<b>Children (7-12 years):</b>								
0.001149	22.97	13057	0.002879	57.58	5210	0.005029	100.58	2982
<b>Females (13-19 yrs/np/nn):</b>								
0.000652	13.03	23022	0.001889	37.78	7941	0.003549	70.98	4226
<b>Females (20+ years/np/nn):</b>								
0.000481	9.62	31195	0.001693	33.85	8861	0.003563	71.26	4210
<b>Females (13-50 years):</b>								
0.000590	11.81	25408	0.001800	36.00	8332	0.003755	75.09	3995
<b>Males (13-19 years):</b>								
0.000966	19.32	15525	0.001840	36.79	8154	0.004309	86.18	3480
<b>Males (20+ years):</b>								
0.000558	11.16	26889	0.001965	39.30	7634	0.003645	72.90	4115